ABSTRACT OF THE DISCLOSURE

A functional molecular element whose functions can be controlled by an electric field based on a new principle. A Lewis base molecule (14) with positive permittivity anisotropy or a dipole moment in the major axis direction of the molecule is disposed, via a metal ion (3) that can act as a Lewis acid, in a pendant-like form on a key molecule (2) in the form of a line or film that has a conjugated system and exhibits conductivity, thereby forming a functional molecular element 1 that can realize a function where the conformation changes due to the application of an electric field. The conductive key molecule (2) and the Lewis base molecule (14) form a complex with the metal ion (3). When an electric field is applied in a direction perpendicular to the plane of the paper in FIG. 1(b), for example, the Lewis base molecule (14) performs a 90° "neck twisting" movement with the up-down direction in the drawing as the axis. Also, when an electric field is applied in the up-down direction in the drawing as shown in FIG. 1(c), the Lewis base molecule (14) performs a "see-saw" movement with the direction perpendicular to the plane of the paper as the axis, thereby switching the conductivity of the conductive key molecule (2).